IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A method for manufacturing an optical filter comprising:

depositing a material on a substrate;

predicting a deposition stop time during the depositing of the material but prior to reaching the predicted stop time; and

stopping deposition substantially at the predicted stop time,

wherein said predicting comprises measuring an optical property of the deposited material at a plurality of times after the start of material deposition, and comparing the measurements to values predicted by a defined functional relationship between said optical property and time of deposition, and

wherein said functional relationship defines transmittance f(t) as a function of time, and is defined as:

$$f(t) = \frac{1}{a_0 + a_1 \cos(a_2 t + a_3)} + a_4$$

wherein a_0, a_1, a_2, a_3, and a_4 are constant coefficients.

Claim 2 (Canceled).

Claim 3 (Currently Amended): The method of Claim [[2]] 1, wherein said defined functional relationship is theoretically valid at substantially all times during film deposition.

Claims 4-5 (Canceled).

Claim 6 (Currently Amended): An improved method of depositing a layer of material having a desired thickness onto a substrate to form an optical filter, wherein the improvement comprises:

predicting, during ~~the~~ a process of depositing the layer but before reaching said desired thickness, a time at which to stop depositing the film by measuring an optical property of the film and utilizing that measurement to determine a time at which said desired thickness will be reached,

wherein said predicting comprises measuring an optical property of the deposited material at a plurality of times after the start of material deposition, and comparing the measurements to values predicted by a defined functional relationship between said optical property and time of deposition, and

wherein said functional relationship defines transmittance f(t) as a function of time, and is defined as:

$$f(t) = \frac{1}{a_0 + a_1 \cos(a_2 t + a_3)} + a_4$$

wherein a_0, a_1, a_2, a_3, and a_4 are constant coefficients.

Claim 7 (Original): The method of Claim 6, wherein the optical property is selected from the group consisting of energy transmittance and energy reflectance.

Claims 8-10 (Canceled).

Claim 11 (Original): A method for manufacturing an optical filter where a film is formed on a substrate comprising:

measuring an optical characteristic of the filter at selected points in time by irradiating the film with light;

calculating a theoretical value of the optical characteristic utilizing a theoretical formula comprising at least one empirically adjustable constant parameter;

compensating the at least one empirically adjustable constant parameter to provide an adjusted parameter so that the difference between the theoretical value and the measured value of the optical characteristic are minimal;

predicting the optimal time of forming the film with the adjusted parameter; and

stopping the forming at the optimal time.

Claim 12 (Original): The method of Claim 11, wherein the optimal time of forming the film is predicted after the amount of change in the adjusted parameter from one selected time to a later selected time falls within a preset range.

Claim 13 (Currently Amended): The method of Claim 11, wherein the at least one adjusted parameter is dependant on a device that measures the optical characteristic.

Claim 14 (Original): The method of Claim 11, wherein the optical characteristic is selected from the group consisting of energy transmittance and energy reflectance.

Claim 15 (Currently Amended): An improved method of time controlled deposition of a film onto a substrate to form an optical filter, wherein the improvement comprises:

measuring an optical property of the film;

utilizing the measurement to determine a designed thickness achieving time at which the film will be complete;

predicting, while the film is being deposited, a stop signal initiation time at which to initiate a deposition stop signal that stops the deposition of the film;

wherein the stop signal initiation time is dependent on both the designed thickness achieving time and a time delay between the stop signal initiation time and the actual termination of material deposition; and

wherein said predicting comprises measuring an optical property of the deposited material at a plurality of times after the start of material deposition, and comparing the measurements to values predicted by a defined functional relationship between said optical property and time of deposition, and

wherein said functional relationship defines transmittance f(t) as a function of time, and is defined as:

$$f(t) = \frac{1}{a_0 + a_1 \cos(a_2 t + a_3)} + a_4$$

wherein a_0, a_1, a_2, a_3, and a_4 are constant coefficients.

Claim 16 (Original): The method of Claim 15, wherein the optical property is selected from the group consisting of energy transmittance and energy reflectance.

Claim 17 (Canceled).

Claim 18 (Currently Amended): A method of manufacturing an optical filter comprising:

depositing a film on a substrate;

measuring the time of the deposition of the film;

measuring transmittance of the filter at regular intervals of time by irradiating the filter;

determining, from the transmittance measurement, the time at which the deposition will be complete using at least in part an equation relating filter transmittance to deposition time having the following functional form:

$$f(t) = \frac{1}{a_0 + a_1 \cos(a_2 t + a_3)} + a_4 \text{ ~~and~~}$$

wherein a_0, a_1, a_2, and a_3 are constant coefficients; and

stopping the deposition of the film at the determined time.

Claim 19 (Currently Amended): A method of manufacturing an optical filter comprising a plurality of layers of deposited material, said method comprising:

modeling an optical characteristic of said filter with an equation relating said optical characteristic to deposition time, said equation having a functional form that is theoretically valid at substantially all times during film deposition; and

wherein using said model to select a deposition stopping time during film formation,

wherein using said model comprises adjusting one or more constant terms in said equation so as to minimize differences between measured values of said optical characteristic and values of said optical characteristic calculated with said equation.

Claim 20 (Canceled).